Fuchsin Lactose Broth

M079

Intended Use:

Recommended for determination of 'coliform' titre in the bacteriological examination of water and other materials.

Composition**

Ingredients	Gms / Litre
Peptone, special	5.000
HM extract#	3.000
Lactose	5.000
Basic fuchsin	0.013
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters
Equivalent to Meat extract

Directions

Suspend 13.01 grams in 1000 ml purified / distilled water. Heat if necessary to dissolve the medium completely. Dispense in tubes containing inverted Durhams tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C.

Principle And Interpretation

It has been agreed by most workers in water bacteriology that the plain Lactose Broth usually used for presumptive test is not altogether satisfactory, in that it gives many false positive tests. A number of modifications have been suggested to eliminate as far as possible, these false positive tests. In most of the modifications, dyes are used to restrain the growth of gram-positive organisms, which are cause of many of the false positive presumptive tests obtained in plain Lactose Broth. Addition of basic fuchsin in plain Lactose Broth has been advocated by Ritter (2).

Fuchsin Lactose Broth is a selective medium, which may be used in parallel with Lactose Broth (M026) in the control of water filtration plant operation (1). Basic fuchsin inhibits many gram-positive organisms, which are responsible for false positive results. However Fuchsin Lactose Broth may not be used as Lactose Broth with all waters, but could be used as a confirmatory medium. This was studied by McCrady while studying procedures for the detection of the presence of coliforms in water (3).

Acid production is observed by the formation of pink to red medium whereas non-fermenters will show no change in the colour of the medium.

Peptone special and HM extract in the medium provides nitrogen and carbon source, long chain amino acids and other essential nutrients necessary to support bacterial growth. Basic fuchsin inhibits many gram-positive organisms, which are responsible for false positive results. Lactose is the fermentable carbohydrate.

Type of specimen

Water samples.

Specimen Collection and Handling

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(1)
After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Fuchsin Lactose Broth may not be used as Lactose Broth with all waters, but could be used as a confirmatory medium.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within expiry period when stored at the recommended temperature.

Quality Control

Appearance

Light pink to purple homogeneous free flowing powder

Colour and Clarity of prepared medium

Light pink coloured, clear solution without any precipitate

Reaction

Reaction of 1.3% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH

6.60-7.00

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Acid Production	Gas
# *Klebsiella aerogenes ATCC 13048* (00175*)	50-100	luxuriant	positive reaction, pink-red colour	negative reaction
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant	positive reaction, pink-red colour	positive reaction
Salmonella Enteritidis *ATCC 13076*	50-100	luxuriant	negative reaction, no change	negative reaction
Salmonella Typhimurium *ATCC 14028*	50-100	luxuriant	negative reaction	negative reaction
Staphylococcus aureus subsp. aureus ATCC 25923 (00034*)	>=10^4	inhibited		
Enterococcus faecalis ATCC 29212 (00087*)	>=10^4	inhibited		

Key : *Corresponding WDCM numbers.

\# Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

Reference

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

4. McCrady, 1937, Am. J. Publ. Health, 27:1243.
5. Ritter, 1932, J. Am. Water Works Assoc., 24:413.
6. Standard Methods for the Examination of Water and Sewage, 1946, 9th Ed., p. 226.

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